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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,734	12/30/2003	Ken Nakahara	88519.0001	7543
26021 7590 01/03/2008 HOGAN & HARTSON L.L.P. 1999 AVENUE OF THE STARS SUITE 1400 LOS ANGELES, CA 90067			EXAMINER MONDT, JOHANNES P	
			ART UNIT 3663	PAPER NUMBER
			MAIL DATE 01/03/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/748,734	Applicant(s) NAKAHARA, KEN	
	Examiner Johannes P. Mondt	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-6,8-11,13-15,17-19 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 is/are allowed.
- 6) ☒ Claim(s) 4-6,8-11,13,15,17-19 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/11/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Amendment filed 10/17/07 forms the basis for this Office Action. In said Amendment, Applicant substantially amended all previously presented claims 4-6, 8-11, 13-15 and 17-19, and added new claim 26. Comments on Remarks submitted with said Amendment are included below under "Response to Arguments".

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 4, 6, 8-11 and 26** are rejected under 35 U.S.C. 102(b) as being anticipated by Kawasaki et al (6,057,561).

Kawasaki et al teach an electrode structure comprising:

a transparent electrode 6 including ZnO (col. 13, l. 25+);

an Mg-doped ZnO film 7 (col. 13, l. 25+) disposed on a light-emission side of an outer surface of the electrode that is opposite to a substrate 1 (col. 13, l. 22+) of a semiconductor device ("optical semiconductor element" as an "LED element": see col. 13, l. 19+ and Figure 31);

wherein the electrode is a component of the semiconductor device (layer 6 is a component of the optical semiconductor element: Fig. 31 and loc.cit.).

On claim 6: the Mg-doped ZnO film 7 overlies an upper surface of the electrode 6 (loc. cit. and Figure 31).

On claim 8: a first metal pattern 8 (col. 13, l. 26-52) is formed on the Mg-doped ZnO film.

On claim 9: the electrode is disposed on a semiconductor layer 2 (col. 13, l. 23+) (N.B.: n-MgZnO layer is a semiconductor layer) of the semiconductor device, and a second metal pattern 3 (col. 13, l. 24-52) is formed on the semiconductor layer.

On claim 10: the limitation defined by this claim is a functional limitation and is inherently met because of the properties of Mg-doped ZnO films.

On claim 11: the electrode is disposed on a semiconductor layer 2 (col. 13, l. 23+) of the semiconductor device, and the semiconductor layer is formed on a substrate 1 (col. 13, l. 22+).

On claim 26: the semiconductor layer 2 is formed on the substrate 1 that is different from the semiconductor layer 2 (quite apart from their different material constitution as n-MgZnO layer and glass substrate, they are different layers) (loc.cit.).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. ***Claims 5, 13, 15 and 17-19*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasaki et al (6,057,561) in view of Yoshida et al (WO 02/70793).

Reference is made to family member Yoshida et al (US 2004/0112278 A1) serving as translation.

Kawasaki et al teach an electrode structure comprising:

a transparent electrode 6 including ZnO (col. 13, l. 25+);

an Mg-doped ZnO film 7 (col. 13, l. 25+) disposed on a light-emission side of an outer surface of the electrode that is opposite to a substrate 1 (col. 13, l. 22+) of a semiconductor device ("optical semiconductor element" as an "LED element": see col. 13, l. 19+ and Figure 31);

wherein the electrode is a component of the semiconductor device (layer 6 is a component of the optical semiconductor element: Fig. 31 and loc.cit.).

Kawasaki et al do not necessarily teach the semiconductor device to include GaN.

However, it would have been obvious to include GaN in view of Yoshida et al, who, in a patent application drawn to II-VI Group based light-transmitting and light-emitting semiconductor device art (see paragraphs [0001]-[0012], especially [0009]), hence art analogous to *Kawasaki et al*, teach that both sapphire (as used by *Kawasaki et al*, see col. 13, l. 39+) and GaN may be used as material embodiments for the substrate (see Yoshida et al, par. [0071]). Applicant is reminded in this regard that it has been held that mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. See MPEP 2144.07.

On claim 13: *Kawasaki et al* teach a light-emitting device (see "Field of the Invention", col. 1) comprising: a semiconductor layer (any of layers 2, 4, 5 or

combinations thereof) (Figure 31 and col. 13, l. 22+) formed on a substrate 1 (loc.cit.) of a semiconductor device (title); a ZnO transparent electrode 6 (col. 13, l. 25+) formed on the semiconductor layer; and a Mg-doped ZnO film 7 (col. 13, l. 25+) disposed on a light-emission side of an outer surface of the electrode that is opposite to a substrate 1 (col. 13, l. 22+) of a semiconductor device ("optical semiconductor element" as an "LED element": see col. 13, l. 19+ and Figure 31).

Kawasaki et al do not necessarily teach the semiconductor device to include GaN. However, it would have been obvious to include GaN in view of Yoshida et al, who, in a patent application drawn to II-VI Group based light-transmitting and light-emitting semiconductor device art (see paragraphs [0001]-[0012], especially [0009]), hence art analogous to *Kawasaki et al*, teach that both sapphire (as used by *Kawasaki et al*, see col. 13, l. 39+) and GaN may be used as material embodiments for the substrate (see Yoshida et al, par. [0071]). Applicant is reminded in this regard that it has been held that mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. See MPEP 2144.07.

On claim 15: the Mg-doped ZnO film 7 overlies an upper surface of the ZnO transparent electrode 6 formed on the semiconductor layer (loc. cit. and Figure 31).

On claim 17: a first metal pattern 8 (col. 13, l. 26-52) is formed on the Mg-doped ZnO film.

On claim 18: a second metal pattern 3 (col. 13, l. 24-52) is formed on the semiconductor layer.

On claim 19: the limitation defined by this claim is a functional limitation and is inherently met because of the properties of Mg-doped ZnO films.

Allowable Subject Matter

5. ***Claim 14 is allowed.*** The following is a statement of reasons for the indication of allowable subject matter: Kawasaki et al does not disclose a light-emitting portion with p-type GaN cladding layer, nor is such obvious over the prior art of record.

Response to Arguments

6. Applicant's arguments filed 10/17/07 have been fully considered but they are not fully persuasive. In particular, applicant substantially amended all previously pending claims and added new claim 26, while arguments in Remarks are moot in view of the new prior art over which claims 4-6, 8-11, 13, 15, 17-19 and 26 have been rejected (see rejections overleaf).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPM
January 2, 2008

Primary Examiner:


Johannes Mondt (Art Unit: 3663)